JZ878 RF Data Radio

User's Manual

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Before using the product, please carefully read the user's manual. Any question in technical, you can contact us.   Tel: +86-755-81353151   83563518.

About JZ878

JZ878, the Middle power wireless Radio, is used as the wireless data transmission and power consumption and good stability and reliability,

It has the function of bi-directional data sign transmission, test and control. It is used for Wireless meter reading, such as water meter, electric meter and gas meter, parking meter, intellective card, electronic weighing apparatus, meter for checking on work attendance, queue wireless meter, building control, shipping company control, alarm system, intelligent equipment, Automatic data collecting system; Industrial remote control and remote test building automation, safety and security, powerhouse equipment wireless monitor, entrance control system, etc.

JZ878 Feature

1. **Power and receiving sensitivity**
    Transmission power: 5W/10W, high receiving sensitivity: -123dbm.

2. **Low consumption**
    RX current: < 45mA, TX current: 1.5A.

3. Modulation mode and Frequency
    Modulation mode: GFSK, Frequency: 433MHz.

4. High anti-interference and low BER (Bit error Rate)
    Based on the GFSK modulation mode, it adopts the efficient communication protocol. The actual bit error rate of $10^{-5} \sim 10^{-6}$ can be achieved when channel bit error rate is 10^{-2}.

5. Long transmission distance
    when the antenna is higher than 8m ,Within the range of visibility, the reliable transmission distance is BER=10-3/1200bps   >20KM,   BER=10-3/9600bps   >10KM .

6. Transparent data transmission
    Transparent data interface is offered to suit any standard or nonstandard user protocol. Any false data generated in the air can be filtrated automatically (What has been received is exactly what has been transmitted). The charge time for receiving and sending <10ms.

7. Multi-channel and speed
    The standard JZ878 configuration provides 16 channels to meet the multiple communication combination modes of the users. It has baud rate to be chosen such as 1200bps   2400bps   4800bps   9600bps   19200bps   38400bps. The wireless transmission rate is direct ratio with baud rate of interface to meet user's equipment requirement.

8. High speed wireless communication and large data buffer
    When the speed rate in the air is quicker than interface's, allowing to transmit unlimited length data at one time, when the speed rate is slower or equal the interface's, allowing the transmission of 255 Bytes long data frames at one time for more flexible programming by users.

9. Intelligent data control and the user doesn't need to prepare excessive programs

Even for semi duplex communication, the user doesn't need to prepare excessive programs, only receiving/transmitting the data from the interface. JZ878 will automatically complete the other operations, such as transmission/receiving conversion in the air, control, etc.

10. High reliability, small and light

Single chip radio- frequency integrated circuit and single chip MCU are used for lessened peripheral circuits, high reliability, and low failure rate.

11. Watchdog monitor

Watchdog monitors the inner function, so that change the traditional product structure and improve the product reliability.

Main Parameters

1. **Integration Parameters**

    Frequency range: 433MHZ

    Channel interval: 25 KHz

    Frequency stabilization: +2.5PPM

    Modulation mode: GFSK

    RF Baud Rate: 1200/2400/4800/9600/19200/38400bps

    Channel amount: 16

    Antenna impedance: 50Ω

    Temperature: -20   85°C

    Working humidity : 10%   90% relative humidity without condensation

    Weight: 200g

    Size: 109mm*79mm*30mm (not include antenna and Data interface)

2. **RX parameters:**

    Receive sensitivity: -123dbm

    Next channel Power: 65dB

    Modulate frequency: 5.0KHz

3. **TX parameters**

    RF Power   5W/10W

    Neighbor channel Power   65dB

    Change time for receiving and sending   <10ms

4. **RS-232/RS485 interface**

    Baud rate   1200/2400/4800/9600/19200/38400bps

    Data format   8N1

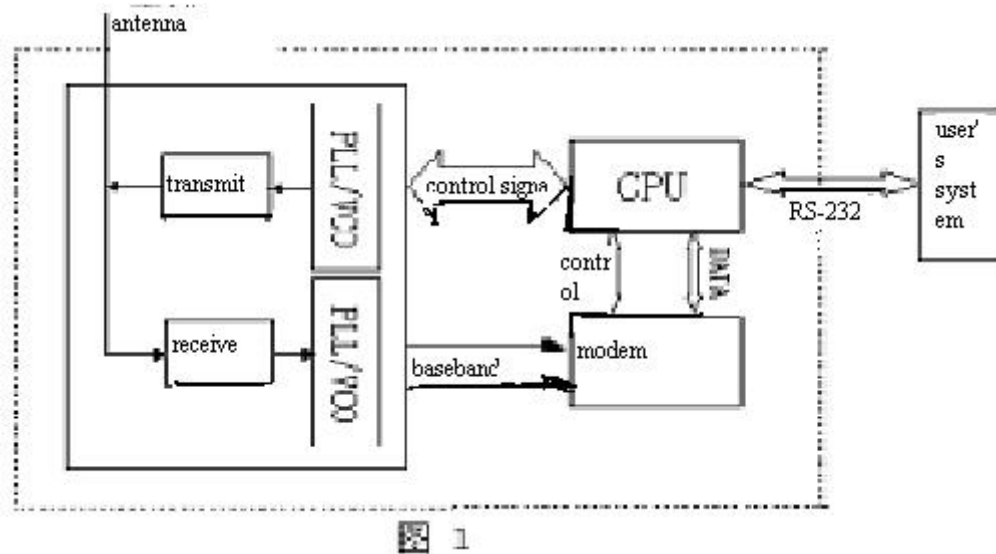5. **Power supply**

    9-15V DC, Standard: 12V

6. **Power consumption**

    RX current   45mA
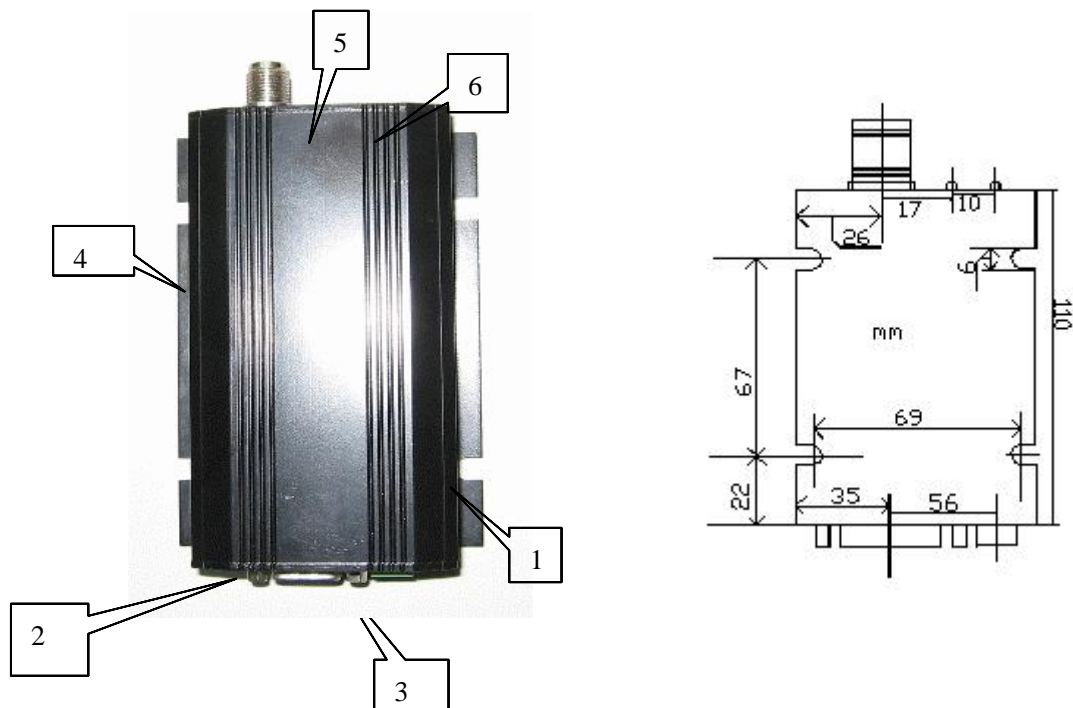
    TX current   1.5A

JZ878

JZ878 consists of transmitter, receiver, base band, Modem, CPU　RS-232 as follows:
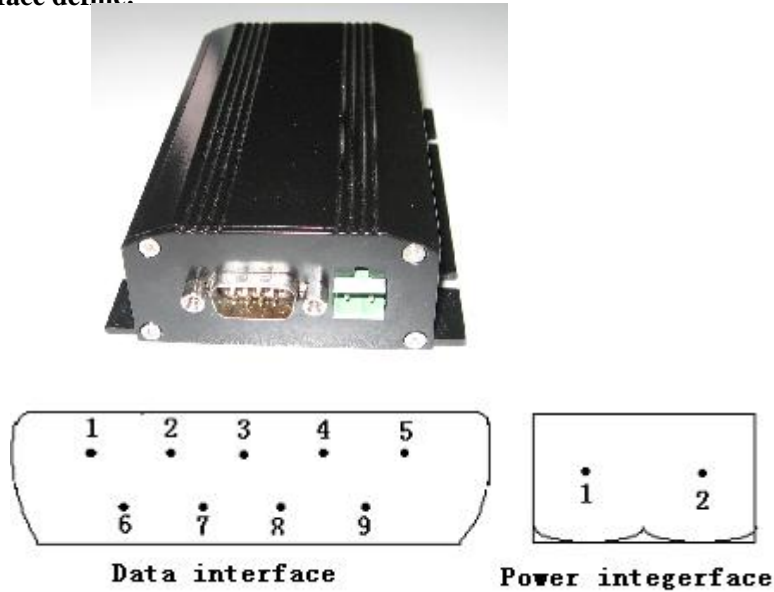

图　1

Interface:

1　JZ878 interface:

1　Install orifice: Install and fixation JZ878.

2　User interface: DB9 male Plug;

3　Power Plug: 2nd pin, right pin is anode, the left pin is cathode;

4　Antenna interface: N type TNC tie-in, female core , screw thread outside, impedance is 50　.

5　TX/RX indicator light: Red light blink when TX, Green light blink when RX.

6　Power indicator light: Green blink.

2   JZ878 Interface define:

Data interface   Power integerface

1   User interface:

JZ878 have one interface of TTL/RS232/RS485, user can choose one

Item no	PIN	Description	User terminal	Remarks
1	Null			
2	TXD/A	Serial data transmitting end	RXD/ A (RS-485)	
3	RXD/B	Serial data receiving end	TXD/ B (RS-485)	
5	GND	Ground	DGND/AGND	
4,6,7,8,9	Null			

Item no	PIN	Description Level Connected to the terminal	User terminal	Remarks
1	GND	Ground		
2	+12V	+12V DC	9-15V DC	Standard: 12V

Remarks: To avoid to connect the interface reverse and can not communicate, please check and assure the voltage of 3 and 4 pin is existing by using multimeter. If there is one pin that has the voltage, another has not voltage, which means the interface is connected reverse, please change the connection wires between pin 3 and 4.

2   Power supply

JZ878 power supply is 9-15V DC   Representative value is +12V DC   the current greater than 3A

It can also share power supply with other equipment; however, the high quality power supply with desirable ripple factor should be selected.

In addition, the reliable grounding must be used if there is other device in the system equipment. In case of failure to connect with the earth, it can form its own grounding, but it must be absolutely separated from the

municipal electric supply.

JZ878 parameters setting

JZ878 have one interface of TTL　RS232　RS485, You must specify the interface when you order. **JZ878 main parameters:** COM baud rate and verify　RF baud rate, Channel and frequency

You can change these parameters by our RF Module software. When RF baud rate is faster than COM baud rate　One frame Can transmit limitless data. When RF baud rate is not faster than COM baud rate　One frame Can transmit 255 bytes. You can set the rate according your request.

Two JZ878 communications must have conditions as follows:

1. Their channels (i.e.　Frequency) is same.

2. Their RF rates is same.

3. RF Module Com baud rate and verify is agree with its equipment or PC that it connects with.

1) Parameters default value:

Channel　　1

Interface speed rate　9600BPS

Interface verify　None

Speed rate in air　9600BPS

2) Channel and frequency list

Channel	Frequency	Channel	Frequency
1	430.2000MHZ	9	458.5250MHZ
2	431.4288MHZ	10	459.1250MHZ
3	431.7360MHZ	11	459.5250MHZ
4	430.5072MHZ	12	460.1250MHZ
5	434.6940MHZ	13	460.5250MHZ
6	434.2332MHZ	14	461.1250MHZ
7	433.1580MHZ	15	461.5250MHZ
8	433.9260MHZ	16	462.1250MHZ

Technical specification of JZ878

Modulation mode:　　GFSK

Working frequency:　　430-470MHZ

Transmission power:　5W/10W

Receiving sensitivity:　-123dBm

Transmitting current: <1.5A

Receiving current:　　<45mA

Channel speed rate:　　1200/2400/4800/9600/19200/38400Bit/s, User can choose one

Interface speed rate:　　1200/2400/4800/9600/19200/38400Bit/s, User can choose one

Change time for receiving and sending:　　<10ms

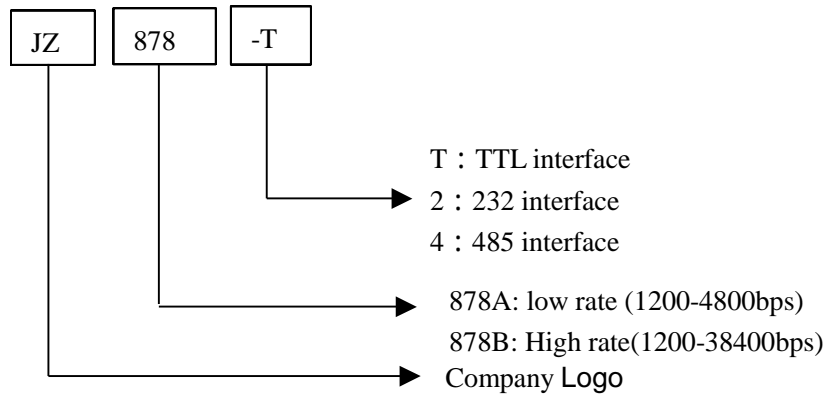Interface data format:　8E1/8N1/8O1

Power supply:　　9-15V DC

Working temperature: -20　　65

Working humidity:　　　10%　90% relative humidity without condensation

Dimension:109mm　79mm　30mm (not include antenna and Data interface)

Attachable Communication with Model: JZ871/JZ872/JZ873/JZ878

Model and name

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  JZ      878     -T
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T   TTL interface

2   232 interface

4   485 interface

878A: low rate (1200-4800bps)

878B: High rate(1200-38400bps)

Company Logo

Trouble and solve ways

NO.	Trouble	Trouble causes and solve ways
1	No shine of Indicator light	a Power Line(+12V) badness touch . b Power(+12V) is bad. c Power line(+12V) meet in reverse, or diode of polarity protect is bad.
2	No transmit or No receive	a Radio is badness touch with PC/terminal. b Radio with TTL/RS232/RS485 not match terminal. c RX frequency and TX frequency is not same.
3	Bit error rate High	a antenna not match, or touch bad; b RF baud rate is not right. c Power supply ripple is too great.
4	Indicator light twinkling	a Electromagnetism disturb in circumstance. b Same frequency disturb in the circumstance.